

What is claimed is:

1. A method for suctioning a boundary layer at a surface of an aircraft having an
5 air-conditioning system, at whose flow-critical points of the surface multiple suction
openings are provided for the boundary layer suctioning, the method comprising the
step of:
feeding an air quantity suctioned from the surface to the air-conditioning
system of the aircraft to reduce flow losses.
- 10 2. The method of claim 1, the air-conditioning system having an air mixer,
further comprising the step of:
feeding the air quantity suctioned to the air mixer unit of the air-conditioning
system.
- 15 3. The method of claim 1, further comprising the step of:
feeding the air quantity suctioned to a conduit connection which connects a
plurality of fresh air outlets of the air-conditioning system to the air mixer unit.
- 20 4. The method of claim 3, further comprising the step of:
feeding the air quantity suctioned to a line connection assigned to the
unpressurized line region.
5. The method of claim 1, further comprising the step of:
25 bringing the air quantity suctioned to cabin pressure before introducing the air
quantity into a cabin region of the aircraft.
6. The method of claim 1, further comprising the step of:

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adjusting at least one of a temperature and humidity of the air quantity suctioned in the air-conditioning system.

7. The method of claim 1, further comprising the step of:

5 discharging the air quantity suctioned to the atmosphere together with the exhaust air of the air-conditioning system via an outlet of the air-conditioning system.

8. A device for suctioning a boundary layer at a surface of an aircraft having an
10 air-conditioning system by using suction openings for boundary layer suctioning, the openings being positioned at flow-critical points of the surface, the device comprising:

a duct system;

wherein the duct system feeds an air quantity suctioned from the surface to
15 the air-conditioning system of the aircraft to reduce flow losses.

9. The device of claim 8, further comprising:

an exhaust;

wherein the exhaust is adapted such that the air quantity suctioned exits to the
20 atmosphere together with the exhaust air of the air-conditioning system via an outlet of the air-conditioning system.

10. The device of claim 8,

wherein the duct system is adapted to transport the air quantity suctioned
25 discharges into an air mixer unit of the air-conditioning system.

11. The device of claim 8, further comprising:

a compression unit;

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wherein the compression unit is integrated into the duct system and is adapted to bring the air quantity suctioned to cabin pressure before introduction into the air-conditioning system.

- 5 12. The device of claim 8,
 wherein the suction openings are positioned in the region of at least one of a
wing assembly surface and tail assembly surface as flow-critical points of the
surface.
- 10 13. The device of claim 8, further comprising:
 a suction source;
 wherein the duct system is connected to the suction source for generating a
suction effect required for the suctioning.

AMENDED CLAIMS

**[Received by the International Bureau on 16 June 2005 (16.06.2005):
original claims 1 to 13 replaced by amended claims 1 to 11]**

What claimed is:

1. A method for suctioning a boundary layer at a surface of an aircraft having an air-conditioning system, at whose flow-critical points of the surface multiple suction openings are provided for the boundary layer suctioning, the method comprising the step of:

feeding an air quantity suctioned from the surface to the air-conditioning system of the aircraft to reduce flow losses; and

discharging the air quantity suctioned to the atmosphere together with the exhaust air of the air-conditioning system via an outlet of the air-conditioning system.

2. The method of claim 1, the air-conditioning system having an air mixer, further comprising the step of:

feeding the air quantity suctioned to the air mixer unit of the air-conditioning system.

3. The method of claim 1, further comprising the step of:

feeding the air quantity suctioned to a conduit connection which connects a plurality of fresh air outlets of the air-conditioning system to the air mixer unit.

4. The method of claim 3, further comprising the step of:

feeding the air quantity suctioned to a line connection assigned to the unpressurized line region.

5. The method of claim 1, further comprising the step of:

bringing the air quantity suctioned to cabin pressure before introducing the air quantity into a cabin region of the aircraft.

6. The method of claim 1, further comprising the step of:
adjusting at least one of a temperature and humidity of the air quantity suctioned in the air-conditioning system.
7. A device for suctioning a boundary layer at a surface of an aircraft having an air-conditioning system by using suction openings for boundary layer suctioning, the openings being positioned at flow-critical points of the surface, the device comprising:
a duct system and an exhaust;
wherein the duct system feeds an air quantity suctioned from the surface to the air-conditioning system of the aircraft to reduce flow losses; and
wherein the exhaust is adapted such that the air quantity suctioned exits to the atmosphere together with the exhaust air of the air-conditioning system via an outlet of the air-conditioning system.
8. The device of claim 7,
wherein the duct system is adapted to transport the air quantity suctioned discharges into an air mixer unit of the air-conditioning system.
9. The device of claim 7, further comprising:
a compression unit;
wherein the compression unit is integrated into the duct system and is adapted to bring the air quantity suctioned to cabin pressure before introduction into the air-conditioning system.
10. The device of claim 7,
wherein the suction openings are positioned in the region of at least one of a wing assembly surface and tail assembly surface as flow-critical points of the surface.

11. The device of claim 7, further comprising:
a suction source;
wherein the duct system is connected to the suction source for generating a suction effect required for the suctioning.